

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY** PCT  
(Chapter II of the Patent Cooperation Treaty)

REC'D 22 NOV 2004

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 1680D/MG	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/IT 03/00703	International filing date ( <i>day/month/year</i> ) 30.10.2003	Priority date ( <i>day/month/year</i> ) 30.10.2002	
International Patent Classification (IPC) or national classification and IPC G07F7/10			
<p><b>Applicant</b>  <b>OLIVETTI TECNOST S.P.A. et al.</b></p>			
<p>1. This report is the International preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 9 sheets, as follows:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>			

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International application No.  
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**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-24 as originally filed

**Claims, Numbers**

1-17 as amended (together with any statement) under Art. 19 PCT

**Drawings, Sheets**

1/3-3/3 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	1-17
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-17
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-17
	No:	Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability ; citations and explanations supporting such statement.**

1. Reference is made to the following documents :

D1: EP-A-0 856 821 (NIPPON TELEGRAPH & TELEPHONE) 5 August 1998  
D2: EP-A-0 936 584 (MATSUSHITA ELECTRIC IND CO LTD) 18 August 1999  
D3: US 2001/000814 A1 (GUTHERY SCOTT B ET AL) 3 May 2001

2. Amendments (Article 41(2) PCT).

Support for the claims 1-17 filed with the letter dated October 14. 2004 has been found in the description in the following parts :

- page 6, lines 14-19 ;
- page 14, lines 19-25 ;
- page 15, lines 9-10 ;
- pages 19-21.

Therefore, the requirements of Article 41(2) PCT appear to be fulfilled.

3. Independent claims 1, 12, 13, 14, 15, 17.

3.1. Claim 1.

The document D1, which is regarded as being the closest prior art to the subject-matter of claim 1, discloses a distributed system comprising :

- a central control unit (management center 4) ;
- a plurality of local terminals (IC card term 2a, 2b) distributed throughout the land, said central unit being suitable for controlling said local terminals through a communication and control network ;
- a plurality of smart cards (IC card 6) assigned to the operators of said local terminals, said smart cards being provided for being used by said operators to activate and enable said local terminals to issue printed objects ;

[column 4, lines 25-57 ; figures 1-3]

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-an initialisation programme associated with said central unit, with said local terminals and with said smart cards  
[column 18, line 49 - column 19, line 44 ; figures 11-12]

The subject-matter of claim 1 differs from this known system in that the initialisation programme is able to initialise in combination, a given local terminal and a given smart card, so as to establish between said given terminal and said given smart card a biuniquivocal relationship of correspondence and cooperation, such that, said given smart card is enabled, within the framework of said system, to cooperate solely with said corresponding given terminal and in turn said given local terminal is enabled for issuing said printed objects solely after having recognized said given smart card in combination with which it was initialised.

The problem to be solved by the present invention may be regarded as generally providing a higher level of security in the use of defined local terminal for accessing to a service (namely issuing printed objects) by an owner of a card registered and authorised for this very local terminal.

Such a problem is not at all addressed in the system of document D1 because it is working exactly in the opposite option whereas each IC card can be used on various terminal (see column 21, lines 29-51). The other relevant prior-art documents (D2 and D3) presently available also disclose systems in which any terminal can be accessed by different IC cards.

Therefore, the solution proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT).

3.2. Independent claims 12, 13, 14, 15, 17 define a method corresponding to the system of claim 1 and systems related to the system of claim 1. The subject-matter of these claims being based in the same solution is therefore considered as involving an inventive step (Article 33(3) PCT).

4. Claims 2-11 and 16 are respectively dependent on claim 1 and claim 15. As such these claims also meet the requirements of the PCT with respect to novelty and inventive step.

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**NEW CLAIMS**

1. Distributed system (10) suitable for issuing printed objects (25), comprising:
  - a central control unit (12);
  - 5 a plurality of local terminals (11) distributed throughout the land and suitable for issuing said printed objects (25), said central unit (12) being suitable for controlling said local terminals (11) through a communication and control network (15, 15a);
  - 10 a plurality of smart cards (21) assigned to the operators of said local terminals (11), said smart cards (21) being provided for being used by said operators to activate and enable said local terminals (11) to issue said printed objects (25); and
  - 15 an initialisation programme (40) associated with said central unit (12), with said local terminals (11) and with said smart cards (21);
  - 20 wherein said initialisation programme (40) is such as to initialise in combination, during an initialisation stage, a given local terminal (11) and a given smart card (21), so as to establish between said given terminal (11) and said given smart card (21) a bi-unequivocal relationship of correspondence and cooperation, such that, following said initialisation stage, said given smart card (21) is enabled to be used on and to cooperate solely with the corresponding said given terminal (11), and in turn said given local terminal is enabled for issuing said printed objects (25) solely after

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having recognized said given smart card (21), in combination with which it was initialised.

2. System according to claim 1, wherein said initialisation programme is provided for being executed following the insertion of said given smart card

5 In the corresponding given terminal, and for activating the following steps:

- recording in a given string an "in the clear" code (24a) and an invisible or protected code (24b) relative to said given local terminal (11) so as to obtain information or a fingerprint defined unequivocally by said local terminal (11); and

10 - signing said fingerprint of said given local terminal with a secret key (35a) present on said given smart card (21), so as to generate a signed fingerprint to be sent to said central unit (12).

3. System according to claim 2, wherein the execution of said initialisation programme (40) is preceded by a customisation step, the 15 purpose of which is to associate and customize said given smart card (21) with a given account (16a) provided within the framework of said system (10).

4. System according to claim 2, wherein the execution of said initialisation programme (40) is subordinated to the recording in a memory 20 (24) of said given local terminal (11) of said "in the clear" code (24a) and of said protected code (24b).

5. System according to claim 2, wherein the execution of said initialisation programme (40) determines the recording of said given smart

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card (21) on said central control unit (12) and its enablement within the framework of said system (10), in association with said given local terminal (11) with which said given smart card (21) has been initialised.

5. System according to claim 2, wherein said initialisation programme (40) is further provided for activating the following step:

- modifying a given data string (35d) recorded on said given smart card and normally employed for defining a personal identification code (PIN) of the holder of said smart card, so as to inhibit the availability of said personal identification code (PIN) to the user of said smart card.

10. 7. System according to claim 2, wherein said initialisation programme executes the signature of the fingerprint of said given local terminal by using a so-called double, asymmetrical key algorithm.

8. System according to claim 1, wherein said initialisation programme (40) is installed on each of the local terminals of said system and 15 constitutes a machine programme true and proper, protected and non-modifiable, for each local terminal (11).

9. System according to claim 1, wherein the execution of said initialisation programme (40) is proposed by the system (10) in response to the insertion of a smart card not yet initialised in a respective local target 20 terminal.

10. System according to claim 1 wherein said printed objects (25) consist of postage stamps and/or revenue stamps and/or stamped titles and/or labels and/or similar prints.

11. System according to claim 1 wherein said given local terminal (11) and the corresponding given smart card (21) are provided for controlling autonomously, without the intervention of said central unit, the execution of local operations concerning the issuing of said printed objects, and wherein  
5 said given local terminal is provided for periodically transferring to said central unit data inherent in said local operations.

12. Method for presetting and initialising a smart card (21) within a distributed system (10) suitable for issuing printed objects (25), said smart card having a given data string (35d) generally provided for defining a  
10 personal identification code (PIN) of the holder of said smart card, said method comprising the following steps:

- customising in advance (41) said smart card (21) in order to associate it with a bank account (16a) integrated in said system;
- inserting (42) said customized smart card (21) in a given terminal  
15 (11) belonging to said system (10);
- modifying (46) said given data string (35d) in such a way as to render it unavailable to the holder of said smart card (21) and therefore inhibit the use of said personal identification code; and
- using said given string, thus modified, in order to unequivocally associate  
20 the smart card (21) with the given terminal (11) in which it has been inserted, so as to preset said smart card (21) for enabling only said given terminal (11), and conversely enable said given terminal (11) for issuing the printed object (25) only after having recognized said preset smart card (21).

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13. Smart card (21) preset for being used within a distributed system (10) suitable for issuing printed objects (25) and comprising a plurality of local terminal (11) for serving a plurality of respective users, said smart card (21) containing in recorded form in a memory (35):

5 a first plurality of legible data defining a public key (35b) of said smart card (21);

a second plurality of embedded data defining a secret key (35a) of said smart card (21); and

10 a given modified data string defining information unavailable to the user of said smart card,

wherein said modified data string is obtained, during an initialisation stage of said smart card (21), by modifying the original information of a given string (35d) of said smart card, normally provided for defining a personal identification code (PIN) for the user of the smart card,

15 in such a way as to inhibit said personal identification code (PIN) and render the information defined by said given string (35d) no longer available on the outside to the user of said smart card (21) but solely available on the inside of said system (10), and

20 wherein the information defined by said modified data string is such as to unequivocally associate said smart card (21) with one corresponding given terminal (11) of said system, so as to allow use of said smart card (21) only for issuing printed objects (25) from said corresponding

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given terminal (11) and thereby avoid use of said smart card (21) on any other terminal of the system.

14. Local terminal (11) preset for operating within a more general system (10) including a plurality of other terminals and suitable for issuing printed 5 objects (25), comprising:

a memory (24) containing, in recorded form, a first in the clear code (24a), corresponding to the serial number of said local terminal (11), and a second invisible code (24b), generated at the time of manufacture of said local terminal (11); and

10 an initialisation programme (40), preloaded in said local terminal, for initialising, during an initialisation stage, said local terminal (11) in combination with a given smart card (21) intended for cooperating in future uniquely with said local terminal (11),

wherein said initialisation programme (40) is such as, during said

15 initialisation stage, to:

combine and record in a given string said first (24a) and said second code (24b), in such a way as to obtain information or a fingerprint suitable for unequivocally identifying said local terminal (11),

sign said fingerprint with a secret key of said given smart card (21)

20 inserted in said local terminal (11), so as to generate a signed fingerprint signed by said given smart card (21) and capable of defining a bi-unequivocal relationship of correspondence and cooperation between said local terminal (11) and said given smart card (21), such that, following said

initialisation stage, said local terminal (11) is enabled for issuing printed objects (25) solely after having recognized said given smart card (21) initialised on said local terminal (11), and

send said signed fingerprint to a service centre of said more general  
5 system of which said local terminal (11) is a part.

**15. Postal franking system (10), comprising:**

a central control unit (12);

a plurality of local terminals (11) suitable for issuing franking elements (25), such as in particular postage stamps and/or labels and/or  
10 similar prints, for application on postal objects to be delivered by post;

a plurality of smart cards (21) assigned to the operators of said local terminals, said smart cards being provided for cooperating with said local terminals (11) in order to identify the respective operator and enable said terminals to issue said franking elements (25);

15 a communication network (15) for the communication and exchange of data between said central unit and said local terminals, in order to permit said local terminals (11) to be controlled by said central unit (12); and

an initialisation programme (40) associated with said central unit,  
(12) with said local terminals (11) and with said smart cards (21);

20 wherein said initialisation programme (40) is provided for initialising, in combination, a given smart card (21) and a corresponding given terminal (11) during a preliminary initialisation procedure,

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and wherein said given smart card (21) and said corresponding given terminal (11), once initialised, establish a bi-univocal type correspondence relationship, such that, subsequent to said preliminary initialisation step, said given local terminal (11) is enabled to issue said franking elements (25), solely after having recognized said corresponding given smart card (21), and conversely said given smart card (21) is suitable for being used by the respective operator for enabling only said corresponding given terminal (11).

16. System according to claim 15, wherein said franking elements are defined by respective amounts in turn determined by the tariffs for delivery of the corresponding postal items, and wherein each of said local terminals is associated, within the framework of said franking system, with a top-up account suitable for containing an overall sum of money destined to diminish progressively in function of the amounts of the franking elements issued by the local terminal.

17. Method for issuing printed objects (25), comprising:  
providing a central control unit (12);  
providing a plurality of local terminals (11) distributed throughout the land and suitable for issuing said printed objects (25), said central unit (12) being suitable for controlling said local terminals (11) through a communication and control network (15, 15a);  
providing a plurality of smart cards (21) assigned to the operators of said local terminals (11), said smart cards (21) being provided for being

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used by said operators to activate and enable said local terminals (11) to issue said printed objects (25);

initialising in combination a given local terminal (11) of said plurality of local terminals and a given smart card (21) of said plurality of smart cards; and

establishing, during said initialising step, a bi-unequivocal relationship of correspondence and cooperation between said given terminal (11) and said initialized given smart card (21), including:

- enabling said initialized given smart card (21) for use on and cooperation solely with the corresponding given terminal (11) in combination with which it was initialised, and
- enabling said given local terminal to issue said printed objects (25) solely after having recognized said initialized given smart card (21).

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